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| 09/606,326      | 06/29/2000  | David Carmel         | 6727/OH370          | 7023             |

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Darby & Darby PC  
805 Third Avenue  
New York, NY 10022

EXAMINER

SPOONER, LAMONT M

| ART UNIT | PAPER NUMBER |
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2654

DATE MAILED: 06/07/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

**Application No.**

09/606,326

**Applicant(s)**

CARMEL ET AL.

**Examiner**

Lamont M Spooner

**Art Unit**

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 29 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4, 8-13, 22, 25, 26, 29, 32 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Halstead, Jr. et al. (US Patent No. 5,963,893 filed Jun. 28, 1996).

As per **claims 1, 22 and 29**, Halstead, Jr. et al. discloses a method for morphological disambiguation comprising:

receiving an input string (C.6.lines 3-5)

morphologically analyzing the string to generate a list of candidate analyses (C.7.lines 24-29-list of candidate analysis each having word and pattern) of the string, each candidate analysis comprising a respective word and a linguistic pattern of the

word (C.6.lines 46-50-morphological analysis-the pattern includes postfixes bounded to stems); and

evaluating the pattern of each of the analyses against a predefined criterion (C.7.lines 23-26) in order to select one or more of the analyses from the list (C.13.lines 3-6).

As per **claims 4, 25 and 32**, Halstead, Jr. et al. discloses all of the limitations of claim 1 on which claim 4 depends. Halstead, Jr. et al. further discloses:

the linguistic pattern comprises a specification of at least one characteristic of the word, selected from a set of characteristics including a part of speech, prefix, number, gender and person of the word (C.7.lines 14, 15, C.12.lines 31-33-prefix analysis included in the set, for the linguistic pattern , C.4.lines 14, 15, 19, 20).

As per **claim 8**, Halstead, Jr. et al. discloses all of the limitations of claim 1, on which claim 8 depends. Halstead, Jr. et al. further discloses:

evaluating the pattern comprises determining a relative frequency of occurrence of the pattern of each of the analyses, and selecting the at least one of the analyses whose frequency of occurrence is above a predetermined threshold (C.9.lines 6-11-the threshold for path frequency of each morphological map which includes analyses, C.10.lines 14-17).

As per **claim 9**, Halstead, Jr. et al. discloses all of the limitations of claim 8 on which claim 9 depends. Halstead, Jr. et al. further discloses:

determining the relative frequency of occurrence comprises analyzing a corpus of text and finding the frequency of occurrence of the pattern in the corpus (C.10.lines 14-17).

As per **claim 10**, Halstead, Jr. et al. et al. discloses all of the limitations of claim 9 on which claim 10 depends. Halstead, Jr. et al. further discloses:

determining the relative frequency of occurrence comprises storing in a table the frequency of occurrence found in the corpus, and looking up the pattern in the table (C.10.lines 14-17, 30-35-the listings in the templates are interpreted as the table).

As per **claim 11**, Halstead, Jr. et al. discloses all of the limitations of claim 8 on which claim 11 depends. Halstead, Jr. et al. further discloses:

selecting the at least one of the analyses comprises setting the threshold so as to control how many of the analyses from the list are selected (C.9.lines 9, 10).

As per **claim 12**, Halstead, Jr. et al. discloses all of the limitations of claim 8 on which claim 12 depends. Halstead, Jr. et al. further discloses:

selecting the at least one of the analyses comprises selecting the at least one of the analyses based on the pattern thereof, and substantially independently of the respective word (C.10.lines 30-35-the entire pattern matching is based upon patterns and independent of the respective word).

As per **claim 13, 26 and 33**, Halstead, Jr. et al. discloses all of the limitations of claim 1 on which claim 13 depends. Halstead, Jr. et al. further discloses:

searching in a corpus of text for a match to the input string using the one or more selected analyses (C.13.lines 45-48- "...may look for particular words..."-indicates searching, "content of text" is interpreted as the corpus, C.13.lines 55-57).

4. Claims 15, 16, 19, 27, 28, 34, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Zamora (US Patent No. 4,862,408 Aug. 29, 1989).

As per **claims 15, 27 and 34**, Zamora discloses:

A method for searching a corpus of text made up of words comprising:

morphologically analyzing the words in the corpus to generate (C.2.lines 66-68), for each of at least some of the words (C.5.lines 56-58), a list of candidate analyses, each candidate analysis comprising a respective lemma and a linguistic pattern relating the lemma to the analyzed word (C.3.lines 1-10);

evaluating the pattern of each of the analyses against a predefined criterion in order to select one or more of the analyses from the list for each of the analyzed words (C.3.lines 17-26-the paradigm references are interpreted as a predefined criterion, C.3.lines 30-32-the selection);

entering the lemmas of the selected analyses in an index of the corpus (C.6.lines 16-20); and

applying a search query to the index (C.6.lines 20-23).

As per **claims 16, 28 and 35**, Zamora discloses all of the limitations of claim 15 on which claim 16 depends. Zamora further discloses:

receiving an input text string (Fig. 1 "input word")

morphologically analyzing (C.4.lines 13-16) and disambiguating (C.4.lines 65-68, C.5.lines 1-5-a disambiguation process), the string to generate one or more search lemmas for the string (C.4.lines 13-16, C.6.lines 20,21-indicates the search lemma); and comparing the search lemmas to the index (C.6.lines 16-27-the lemmas are compared to the index, for recall and retrieval purposes).

As per **claim 19**, Zamora discloses all of the limitations of claim 15 on which claim 19 depends. Zamora further discloses:

the linguistic pattern comprises a specification of at least one characteristic of the word, selected from a set of characteristics including a part of speech, prefix, number, gender and person of the word (C.6.lines 8-15).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 3, 23, 24, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halstead, Jr. et al.

As per **claims 2, 3, 23, 24, 30, and 31**, Halstead, Jr. et al. discloses all of the limitations of claim 1 on which claims 2 and 3 depend. Halstead, Jr. et al. further discloses:

the approach has applicability to natural languages other than Japanese (C.14.lines 9-10).

Therefore, it would have been obvious to one skilled in the art to choose Hebrew, as Semitic language as the input. The motivation for doing so would have been to expand the language selection options for disambiguation.

7. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zamora.

As per **claims 17 and 18**, Zamora discloses all of the limitations of claim 15 on which claims 17 and 18 depend. Zamora further discloses:

applying a morphological analysis process to many natural languages (C.2.lines 45-55).

Therefore, it would have been obvious to one skilled in the art to choose Hebrew, as Semitic language as the input. The motivation for doing so would have been to expand the language selection options.

8. Claims 5-7, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halstead, Jr. et al. in view of Zamora.

Halstead, Jr. et al. and Zamora are analogous art in that they are both of the morphological analyses field.

As per **claim 5**, Halstead, Jr. et al. discloses all of the limitations of claim 4 on which claim 5 depends. Halstead, Jr. et al. further discloses:

the specification of the at least one characteristic comprises a specification of the characteristics in the set (C.7.lines 14, 15, C.12.lines 31-33, C.4.lines 14, 15, 19, 20).

Halstead, Jr. et al. does not disclose:



the set of characteristics includes gender.

However, as it is well known in the art, Zamora et al. teaches affix portions specify gender. Therefore, at the time of the invention, it would have been obvious to combine Halstead, Jr. et al. with Zamora. The motivation for doing so would have been to identify all inflectional forms of the morphological analyses, which include all forms of affixes (Halstead, Jr. et al. C.4.lines 16-21).

As per **claim 6**, Halstead, Jr. et al. discloses all of the limitations of claim 5 on which claim 6 depends. Halstead, Jr. et al. further discloses:

when the base word comprises a verb, the linguistic pattern further comprises a designation of a tense and pattern of the verb (C.4.lines 10-15, C.7.lines 23-27).

Halstead, Jr. et al. does not explicitly disclose:

the designation of a conjugational pattern of the verb.

However, as it is well known in the art, Zamora teaches morphological analysis including the conjugational patterns derived from words (C.2.lines 50-55). Therefore, at the time of the invention, it would have been obvious to combine Halstead, Jr. et al. with Zamora. The motivation for doing so would have been to include the entire array of morphological analyses to the word for stem and postfix or prefix identification (Halstead, Jr. et al. C.4.lines 10-17).

As per **claim 7**, Halstead, Jr. et al. discloses all of the limitations of claim 1 on which claim 7 depends. Halstead, Jr. et al. further discloses:

each of the analyses has a lemma (C.4.lines 11, 12-the lemma is the stem, C.9.lines 12-17) and a paradigm determined by the word and the linguistic pattern thereof (C.7.lines 5-8),

Halstead, Jr. et al. does not disclose:

and wherein evaluating the pattern comprises eliminating one of the analyses from the list if it has the same lemma and paradigm as another of the analyses.

However, as it is well known in the art, Zamora teaches eliminating one of the analyses for the list if it has the same lemma and paradigm as another of the analyses (C.4.lines 68, C.5.lines 1-5). Therefore, at the time of the invention, it would have been obvious to combine Halstead, Jr. et al. with Zamora. The motivation for doing so would have been to efficiently process content indexing or dictionary searching (Halstead, Jr. et al. C.13.lines 54-57, Zamora C.5.lines 4, 5).

As per **claim 14**, Halstead, Jr. et al. discloses all of the limitations of claim 1 on which claim 14 depends. Halstead, Jr. et al. further discloses:

checking for spelling in the input string using the one or more selected analyses (C.1.lines 60-63, C.8.lines 27-31).

Halstead, Jr. et al. does not disclose:

checking for spelling errors in the input string using the one or more selected analyses.

However, as it is well known in the art, Zamora et al. teaches of checking for spelling errors in the input string using one or more of a selected morphological analyses method (C.5.lines 19-24). Therefore, at the time of the invention, it would have

been obvious to combine Halstead, Jr. et al. with Zamora. The motivation for doing so would have been to identify the errors in the input string, which would be the directed benefit of having the spelling for morphological analyses of the input string (Halstead, Jr. et al. C.1.lines 60-63).

9. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zamora in view of Halstead, Jr. et al.

Zamora and Halstead, Jr. et al. are analogous art in that they are both of the morphological analyses field.

As per **claim 20**, Zamora discloses all of the limitations of claim 15, on which claim 20 depends. Zamora further discloses:

evaluating the pattern comprises determining a relative frequency of occurrence of the pattern of each of the analyses (C.7.lines 36-39-the pattern frequency is determined),

Zamora does not disclose:

selecting the at least one of the analyses whose frequency of occurrence is above a predetermined threshold.

However, as it is well known in the art, Halstead, Jr. et al. teaches selecting at least one analyses whose frequency of occurrence is above a predetermined threshold (C.9.lines 9, 10). Therefore, at the time of the invention, it would have been obvious to combine Zamora with Halstead, Jr. et al. The motivation for doing so would have been to obtain a certain best path and highest scoring pattern for retrieval.

As per **claim 21**, Zamora and Halstead, Jr. et al. disclose all of the limitations of claim 20, on which claim 21 depends. Zamora further discloses:

selecting the at least one of the analyses comprises selecting the at least one of the analyses based on the pattern thereof, and substantially independently of the respective word` (C.6.lines 17-20-selection from the paradigm process-interpreted as the pattern, independent of the respective word).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Carus et al. (US Patent No. 5,794,177 Aug. 11, 1998) teaches morphologically analyzing and disambiguating a corpus and specifying inflectional paradigms without the necessity of context and syntactical dependencies.
- Kanevsky et al. (US Patent No 5,835,888 Nov. 10, 1998) teaches morphologically determining statistical dependencies between inflectional divisions of a word from a corpus, thereby disambiguating the grammatical sense of the word.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M Spooner whose telephone number is 703/305-8661. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 703/306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703/305/9508.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703/305-3900.

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05/17/04

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER